Daily Diary Report by Bid Item

Contract No.: **04-0120F4**

Diary #: **1220** **Const Calendar Day:** 793 **Date:** **06-Aug-2014** **Wednesday**
Inspector Name: **Brignano, Bob** **Title:** **Transportation Engineer**
Inspection Type:
Shift Hours: **Break:** **Over Time:**
Federal ID:
Location:
Reviewer: **Schmitt, Alex** **Approved Date:** **Status:** Submit

04-0120F4
04-SF-80-13.2/13.9
Self-Anchored
Suspension Bridge

Weather

Temperature **7 AM** **12 PM** **4PM**
Precipitation **Condition** partly cloudy am and pm

Working Day ☑ If no, explain:

Diary: Dispute ☐

General Comments

CCO 314, SAMPLING AND TESTING A354 GRADE BD MATERIAL:

Weather note: There were some light rain showers overnight and early this morning in the Bay Area, including in parts of Oakland, but there is no standing water at the test rig site at Pier 7 this morning.

ABF Engineer Kelvin Chen is working part time in the field and office on CCO 314.

There is work in the field on TR's 18 & 19 – detension and start partial dismantling today after the first tensioning step yesterday. Crews at the Pier 7 warehouse are working an 8-hour shift 0600 through 1430. Working on the CCO operation for part of today are Laborer Carlos (Pedro) Garcia (0600~0700), Ironworker Jared Garrett (0600~0630, 1130-1430), Ironworker John Rocha (0600~0630, 1130-1430), and Operator John Sabatino (~1230~1330). The non-CCO 314 operations elsewhere at the Pier 7 warehouse area at other times in the day are not covered by this diary.

In the morning, the ironworkers and the laborer continue CCO 314 work for the first half hour to hour of the day in the area to the south of the test rigs where they are cleaning up and moving material. This is a continuation of work yesterday afternoon. After completing this cleanup work, they work elsewhere at the Pier 7 warehouse area.

With the 2 test rigs under load, VGO continues work today. From VGO, Dave Van Dyke, Rob Rutledge, and Pamela Wallace are at work in the Bay Area today. It was planned for today to be a day of offsite work to download and report data and for Rob to fly out, but there is an issue with the data that changes the plan. Dave and Rob arrive on site about 0800 to discuss the issues with the data. Rob postpones his flight a few days. After detensioning the rods about noon, Dave and Rob leave site in the early afternoon for a late lunch, and then had planned to come back to the site with Pamela, but ABF does not get the test rigs dismantled to an adequate point to where VGO can do their planned work, so they do not come back to the site today. They work offsite to review the strain gauge installation process and QC check procedures.

There are a few strain gauge issues. As noted yesterday, a strain gauge at TR 18 (strain gauge 18N_2) had data drift and is not being included in the data reports, along with the affected calculated bending channels. Because this is for 1 of 4 primary strain gauges at the north with all 4 secondary strain gauges at the south not having an issue on this rod, we discuss today reversing which strain gauges are considered to be the primary strain gauges and the secondary strain gauges. The primary strain gauges are used to control the jacking operation, so it is important to use the array of strain gauges with all 4 strain gauges functioning properly (the south strain gauges that were formerly considered the secondary strain

gauges).

Another strain gauge with a problem is noticed today, with this being the third of 16 installed strain gauges at TR's 18 & 19 with an issue. Previously, there was one strain gauge at TR 19 (19S_3) with a problem after the longer term checks over the weekend. With only one problem strain gauge that had a functioning backup strain gauge, we thought proceeding was appropriate on Monday (8/4/2014). This morning, while looking at the data from yesterday (8/5/2014) and today (8/6/2014), we noticed a second strain gauge at TR 19 (19N_3) with an issue that was not as obvious of a problem to us yesterday. With this third strain gauge issue (between the two test rigs) being the primary strain gauge (19N_3) for the secondary strain gauge (19S_3) that already had an issue, there would be no vertical bending calculated channel possible for this rod but other calculated channels would still be valid. We considered several different options for proceeding with the test. Prior to this phase, there was only 1 of 136 (0.7%) strain gauges that did not provide data. With 3 of 16 (19%) of the strain gauges in this phase not being able to provide reliable data after passing the initial QC tests by VGO, and with higher loads in future load steps that could possibly result in additional strain gauge issues, there is a lack of confidence in the remaining strain gauges at higher loads and we concluded that replacing all of the installed strain gauges on these two rods was appropriate before going to higher loads. VGO and the DJV recommend replacing all the strain gauges. The main concern was not knowing exactly why these 3 strain gauges failed after passing the initial QC tests and if more strain gauges could fail at higher loads. VGO has extra strain gauges and the associated parts and equipment in their trailer, but they would prefer to use new material, including the glue, because they do not know the cause of the problem with these strain gauges. VGO arranges to have all new strain gauges, glue, etc shipped overnight from their office in Oregon to the Bay Area, arriving tomorrow before 8am.

After making the decision late this morning to stop the test at TR's 18 & 19 after tensioning to the first step of 0.30 Fu yesterday, ABF detensions the rods today so that the strain gauges can be replaced by VGO. The progress today includes detensioning the rods and unbolting the end plates, but not removing the end plates, which will happen tomorrow. The work to replace the strain gauges involves a partial dismantle, installing new instrumentation the rest of this week, and checking instrumentation and reassembling the test rigs next week.

ABF's detensioning and partial dismantling operation starts after the lunch break ends at 1130. There are no DJV witnesses or CT-METS AE checks for this operation. After establishing the plan for today with the ironworkers and getting setup, the detensioning starts at TR 18 at 1155. The hydraulic pressure is increased to 2,100 psi per the dial gauge and the force per the primary strain gauges is 279 kips. The nut is backed off and the hydraulic pressure bleed to approximately zero. The nuts are later checked to verify that they are all loose. Then the detensioning starts at TR 19 at 1204. The hydraulic pressure is increased to 2,100 psi per the dial gauge and the force per the primary strain gauges is 276 kips. The nut is backed off and the hydraulic pressure bleed to approximately zero. The nuts are later checked to verify that they are all loose.

Because of the upcoming work on the rods, after detensioning the rods, VGO removes the displacement transducers that are clamped with a frame to the jacking rods at the north end of the test rigs. VGO also removes the ambient air thermocouple that is secured to one of the tent frames, because ABF may need to move the tents to get access for traffic plate and end plate work at the south end of the test rigs. I remove the AE sensors on the ends of the 2 test rods and move the wires for these 2 AE sensors back out of the way of the upcoming work.

ABF ironworkers remove a portion of the fence previously erected to the south of the test rigs for safety to keep people out while the rods are under load – this fence now needs to be partially removed for forklift access to remove the south end plates at the test rigs. ABF ironworkers remove the wire rope that had been placed over the south traffic plates at the 2 test rigs so that they can be moved out of the way for access to the end plates. ABF ironworkers remove the end tarps at the south ends of the two tents at the two test rigs for access to the traffic plates that are partially under the tents and end plates that are fully under the tents. ABF may need to move the tents to the north to get them out of the way of the forklift, but they will first attempt to do the work with the tent frames and top tarps in place with only the end tarps

removed. The ironworkers with an operator then work on the south traffic plates at the 2 test rigs. With the forklift not extending all the way to the tent frames and only picking the south ends of the traffic plates (pick from 2 corners of each plate, not all 4 corners), the traffic plates are shifted a few feet to the south to gain access to the end plates that were under the traffic plates. A compressor is brought to the test rig site and the south end plates are unbolted using an air impact gun. The A325 bolt assemblies are saved. They can be reused per code provided the nuts run all the way down the bolt threads without issue (this is a check to make sure they were not over tensioned and plastically elongated). A check of the bolt threads with the nuts demonstrates that the A325 bolt assemblies from the south end plates can be reused and new material does not need to be ordered. The TR 18 end plate is unbolted before the afternoon break starts at 1330 and the TR 19 end plate is unbolted after the end of the afternoon break. Then there is not enough time left at the shift, given that tools need to be put away, to remove the end plates from the test rigs, with that work scheduled to happen tomorrow. VGO was planning to remove strain gauges from the jacking rods this afternoon since they start and end their shift later than ABF, but since the end plates are not removed today, VGO is not able to get started with this work that involves rotating the rods without the end plates in place.

A 7kW generator – Whisperwatt 7000 – ABF ID 002343 is on idle/standby at the test rig work area. A 40kW generator – MQ Power 40 – ABF ID 002051 is used briefly for the jacking operations (detension) and is on idle/standby at the test rig work area the remainder of the day. A Hydraulic Pump for running the jacks is used briefly for the jacking operations (detension) and is on idle/standby at the test rig work area the remainder of the day. An oxyacetylene torch onsite at the test rig work area is removed from the CCO 314 site ~0630. Various forklifts are used at the test rigs at different times – Hyster 80 forklift (ABF ID 002306) and extendable forklift (Gradall 544D - ABF ID 002005). A Kubota Cart is used by the laborer and another Kubota Cart is used by the ironworker at the test rig work area. A compressor - IR 185 ABF ID 002039 - is brought to the test rig site ~1315 and is used for the unbolting of the south end plates at TR's 18 & 19.

Note that there is k-rail at this work area. All the remaining k-rail at the CCO 314 test rig site is State owned. There are 20 pieces of 10' bought k-rail. Of the 20 pieces, 16 are installed in test rigs and 4 are spare/extra k-rail that are set aside.

To elevate k-rail and sandbags, crane mats (built from 12x12's) and timber blocking (12x12's) are used. The crane mat and 12x12's quantities are as follows:
1 each 4'x20' crane mat (1 x 80 LF)
1 each 5'x19' crane mat (1 x 95 LF)
2 each 5'x20' crane mats (2 x 100 LF)
2 each 5'x16' crane mat (2 x 80 LF)
~64 LF additional 12x12's
Total 12x12's quantity = 599 LF ~ 600 LF

The agreed extra work with ABF is as follows:
Laborer Carlos (Pedro) Garcia - 1 hr
Ironworker Jared Garrett - 3 hrs
Ironworker John Rocha - 3 hrs
Operator John Sabatino - 1 hr
185 CFM Compressor - 1 hr
Extendable Forklift - 1 hr
Kubota Cart - 1 hr
12x12 timber - 600 LF
See the attached Extra Work Order - Signed with ABF for CCO 314 work

INSPECTOR OT REMARK:

Field and Office 4 hours: ABF's shift is 0600 to 1430. VGO is on site from 0800 to early afternoon. I am in the field for ABF's work and for discussions with VGO about the strain gauge issues most of the time

between 0600 and 1430. Later in the afternoon, I am addressing issues related to the strain gauge problem and the stopping of the test (detension rod). This includes discussions and meetings with VGO, ABF, the DJV, CT-METS, and other CT management. My shift is 0600 to 1830, with the OT between 1430 and 1830.